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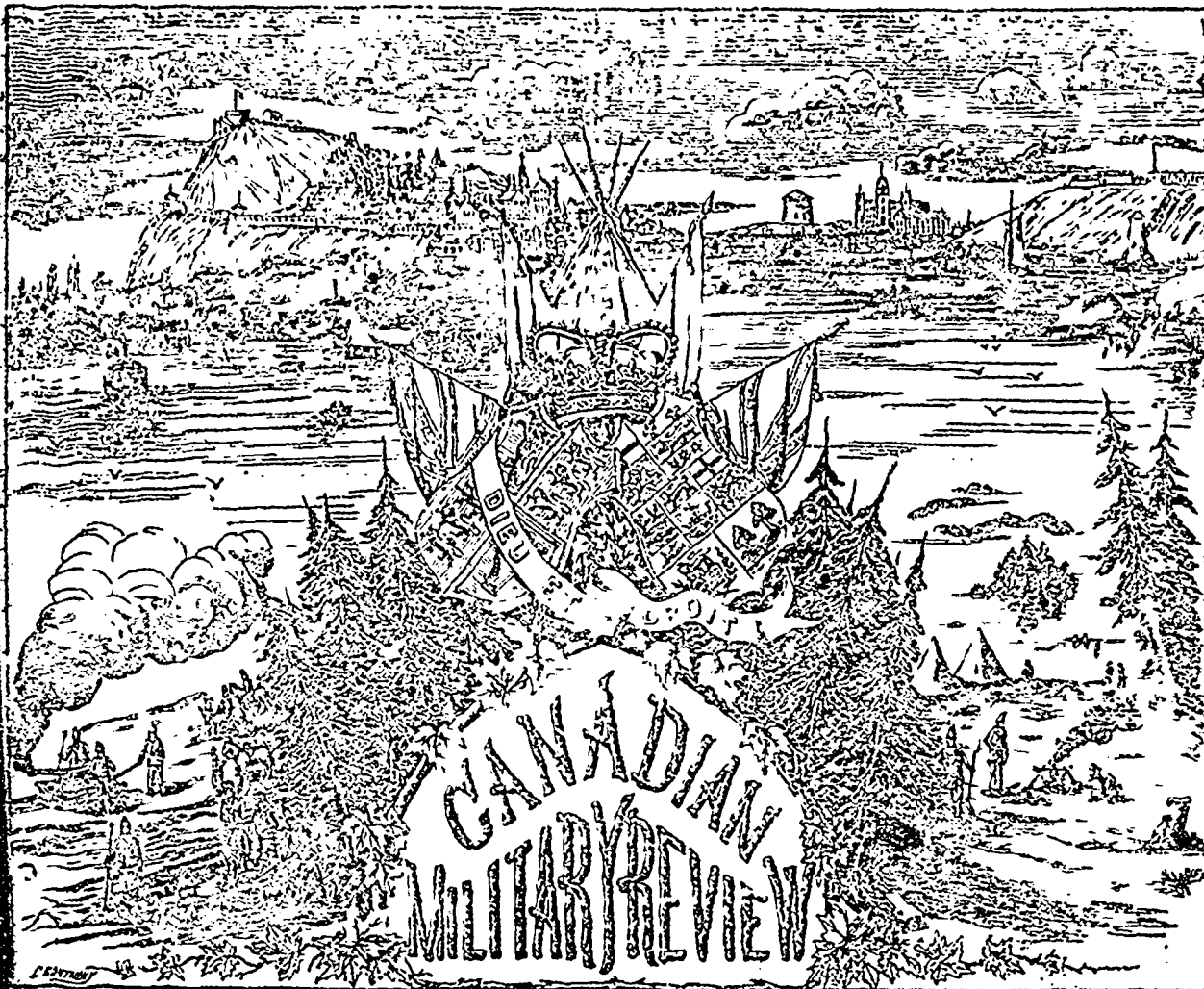
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VOL. I, No. 11.

KINGSTON, 1st DECEMBER, 1880.

Sub. \$1.00 per annum.
10 cts, single copy.

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NOTICES.

All correspondence connected with the *C. M. Review* should be addressed to the Secretary, R.S.G., Kingston.

Communications intended for publications in the next issue of *C. M. Review*, must reach the Editor not later than the 30th of month.

NOTE.—Officers of the Militia are requested to kindly forward to the Editor, for insertion in the "Militia Item" column, any information respecting their own regiments which they think will be of interest to their brother officers.

List of useful scientific books for sale, published at the Royal Arsenal of Gunpowder, Kingston, Ont.:

Canadian Militia Field Artillery Manual, (by Lt.-Col. F. Bland Strange).....	75
Respect of the late Franco-German War (same author).....	50
Field Gun Drill, (extract from G.F.A.M.).....	10
Practical and Competitive Practice for Artillery Drill.....	15
Field Artillery, drill and exercises.....	15

AVIS.

Conformément à la loi, toute personne qui reçoit un journal et qui ne le renvoie pas, se trouve abonnée de droit.

Les personnes qui auraient quelques communications à nous adresser sont priées de nous les envoyer avant le 20 de chaque mois.

Les personnes qui désirent entrer dans la Batterie "B" sont priées de se présenter au Commandant, (Kingston), tous les jours de 10 heures à midi, ou de lui envoyer leur demande avec leurs certificats de bonne conduite. Il faut aussi qu'elles sachent lire et écrire qu'elles jouissent d'une bonne santé, que leur hauteur ne soit pas moindre de 5 pieds 4 pouces, la mesure de la poitrine de 34 pouces. Enfin, nous les prévenons que les ouvriers charpentiers, menuisiers et forgerons ont une extra paie de 20 cents par jour.

La Batterie "B" informe le public militaire qu'elle tient à sa disposition les ouvrages de *drill* pour le *smooth bore*, le mortier, les canons rayés etc., ouvrages imprimés par les presses de l'École Royale d'Artillerie sous la haute surveillance du commandant.

The Canadian Military Review,

DECEMBER 1st. 1880.

General Luard and the Active Militia.

A letter addressed to the *Toronto Mail*, of the 20th ult., by Major Macpherson, Governor General's Foot Guards, Ottawa, places before the country in a clear light the urgent necessity of extending the facilities for instructing the officers and men of our active militia in the duties of soldiers and in the modern science of war. Major Macpherson says:—

Since General Luard commenced his inspection he has been made the subject of some severe editorials and letters in the columns of leading newspapers for the course he has seen fit to pursue, and the remarks he has made respecting the efficiency of the active militia of Canada. The writers of these articles do not by any means represent the sentiments of the whole force, and, as one holding contrary opinions, I would ask your permission to be allowed to place before the public some of the views entertained by myself and others.

In the first place, I would desire to call attention to the fact that the regiments which have been inspected were not suddenly called out without warning, that they were not taken by surprise in any way, but that the period selected was known some time beforehand. Every preparation was deliberately made, and every effort put forth to make as respectable an appearance as possible; in fact they were seen at their best, and if under the most favorable circumstances the force does not come up to the standard fixed by the inspecting officer, what would its value be if suddenly called out for active service against a well organized and thoroughly drilled enemy? If I am not mistaken, General Luard has acted as Adjutant in the volunteer force of Great Britain, and may therefore be fairly supposed to understand the difficulties of our position, and to be able and willing to make all due allowance for our shortcomings. Instead of finding fault, I think that every officer of the active militia who has its welfare at heart should thank him most sincerely for the words he has spoken. They have done more to attract the attention of the whole country to the force than anything that has occurred since the Fenian raids, and it is earnestly to be hoped will be the cause of a change in the present system.

In the next place the language of General Luard is not in any way stronger than that used by his predecessor. When Sir Selby Smyth first came out he strenuously endeavored to place matters on a proper footing, but after a time, appeared to accept things as he found them. Still, even so late as 1878, when his views had become modified by four years residence in the country, in his annual report he used these words:—"The military profession requires education as much as those of the learned professions, and it is a delusion to think that it is time enough when alarm arises to call a *levée en masse* for the safety of a country. An armed and undisciplined multitude of officers and men are but a rope of sand, and as dangerous to their friends as to their foes." "The paid training of the militia has been reduced to a minimum, only one half of the force being embodied for twelve days' drill in each year, and such training as that amounts to is almost useless, being really little more than an armed muster at battalion and company headquarters." Referring to the annual grant, he points out, that after certain expenses are paid, "there remains for the drill pay and incidental expenses attendant on drill and training only the meagre and insufficient sum of \$155,000. This sum is quite inadequate to keep the 42,000 militia of Canada in a proper state of training and effectiveness, amounting approximately to the cost of a single British battalion of the line. What progress can a general officer make in this case? He can only feel himself a source of disappointment to the excellent and loyal body of officers and men under his command, who look to him for support." Again, referring to the drill he says: "They cannot teach who have had no chance to learn, and how can they learn unless Government provides the means?"

Now, if words mean anything, these quotations clearly show that it was General Sir Selby Smyth's deliberate opinion that the active militia of Canada were an armed and undisciplined body of officers and men, as dangerous to their friends as to their foes; that their drill was almost useless, and little better than armed musters; that their officers were incapable of instructing, for the reason that they themselves had no chance to learn; and that the bottom of the whole thing was the quite inadequate sum of money allowed by Government for drill and training.

Turning back a few years ago to the report of 1872, we find that Colonel Robertson Rose expressed very much the same views. He says: "I have no confidence in the system of allowing corps to perform their annual drill independently at local headquarters in drill-sheds. Practical rifle instruction and target practice cannot be carried out at all in drill-sheds, and skirmishing only very imperfectly taught; yet these are the most essential in military exercises. It is not enough for officers and men to obtain some knowledge of regimental drill and duties. Officers who are afforded an opportunity of learning only this part of their duties can gain but little insight into many other duties required of them in the event of emergency." "In time of danger the ranks of the militia of Canada have always been filled with men, but untrained men and undisciplined valor does not constitute military strength or national security." Now, I think it will be at once apparent that the views of General Luard and his predecessors are identical, the only difference being in the method of conveying them. He chose to express the thoughts that rose in his mind when actually in the presence of the regiments; they

preferred to embody theirs in their annual reports. The latter are not read by many, and the language used, being of a general nature, and referring to the force as a whole, each person was quite at liberty to suppose that the strictures were intended for every other regiment but his own; therefore no offence was taken. But, when General Luard draws aside the mantle in which we have been wrapping ourselves, and in a few brief, soldierly sentences reveals the fact that "our" regiment is "an armed and undisciplined multitude of officers and men, as dangerous to our friends as to our foes;" that "our" training "amounts to little more than an armed muster;" that "our" men do not appear to have a knowledge of the use of their rifles or of skirmishing properly, the most essential of military exercises; and that while the physique is good and courage undoubted, we should not forget that untrained men and undisciplined valor does not constitute military strength; there is instantly a great row, and columns are filled with complaints as to want of consideration, and ignorance of the force, &c., &c.

When an inspecting general finds that if a regiment were suddenly called out for active service against any fairly organized and disciplined force it would be utterly useless, which is the kinder thing to do—to point out the defects in a straightforward, manly way, or to shut his eyes to all shortcomings and distribute unmerited praise?

If the inspecting officer were to make it quite clear that everything was as good as could be expected for the money, all would be right. Of the spectators who attend an inspection, few are able to detect mistakes, everything appears to go smoothly, and when the visiting officer declares the regiment to bear the evidence of careful training, and to be in an efficient state, they very naturally come to the conclusion that there is in operation an admirable system under which, at a very small expenditure of money, the country has at command a well-disciplined force, available either for the purpose of internal disorders, or of starting off on a sudden emergency to repel an attack on the frontier.

That such is not the case is a fact only too well known to every officer who has spent any length of time in it. One regiment to which General Luard is said to have spoken in very plain terms was thus reported by the brigade-major of the district, who has not only been an officer in the regular army, but has had a long experience in connection with the force in Canada:—"No. 1 Company he found well drilled, but without tunics belonging to the company, those they had having been purchased by the officers. I shall give his exact words respecting two other companies:—"I inspected No. 3 at ——— on the 29th November, and accompanied by Lieut. Col. ——— I was not in any way pleased with this company; its drill was indifferent. The physical appearance of the men was very small; some young, others very old. They had little uniform, giving an unsoldierlike appearance. The arms and accoutrements were fairly clean. Target practice was performed. The company had little instruction worth speaking of. I inspected No. 5 on the 30th November, accompanied by the officer commanding and the adjutant. The company was composed of very fine men indeed, but they had received no instruction. Company drill, bad; manual and firing exercises, indifferent; skirmishing, bad. The officers wore the uniform of the ———th, with civilian wide-awakes as a head-dress and the men generally were without uniform." Last year the Deputy Adjutant-General of the District, also a regular soldier of large experience, thus describes it after eight days' drill in camp:—"The regiment did not turn out as well as last year, the clothing being much soiled, the belts and pouches dirty, and the arms not fairly clean. Major ——— put the regiment through the manual and firing exercises, which were indifferently performed, also the battalion movements. I noticed several under-sized men in the ranks. The weather was very wet the night before the inspection, and it wind so high the following morning as to prevent the men from hearing the words of command distinctly, which might partly account for their unsteadiness, as well as for the state of their accoutrements, &c." Nothing that General Luard has said has been as strong as this, but, if it had been, it is surely better to recognize that he is doing his duty, and can have nothing but the good of the force at heart, and instead of grumbling, to bring forward some scheme by which the force may be placed on a really sound footing.

The decreased number of days the active militia are now required to drill, and the fact that only one-half of them are allowed to do so at all, clearly indicate that the force has ceased to excite that interest which it did when there was an appearance of its being necessary, and I believe there are some who have come to the conclusion that it could be very well dispensed with altogether. The political horizon has been so long clear that they seem to have come to regard it as impossible that it could ever be clouded again. If that is really the case, then the force is a useless burden on the country, and sooner it is done away with the better. But is it the case?

We have in Canada the raw material of as fine an army as can be raised anywhere on the face of the earth. In strength, stature, constitution, intelligence, and all that goes to make the soldier, our young men are everything that could be desired, and it is but necessary to give them a soldier's training to make them as fine a body of troops as any nation can boast of. But this cannot be done in twenty-four hours, and the cost of a soldier's training is not a matter of a few dollars. Inducement to join, or after joining to remain, that our men are constantly changing. Each year finds us with a new set of men, and a large proportion of new men, so that we have to commence anew from the beginning, and we never believe that state of fair officers that we might be expected to do if they remained on to the end of three years' service. If we tried to enforce the law and compel them to do so, men would not join at all, and we are therefore obliged to let them come and go at will. As a rule they remain just long enough to get a very superficial knowledge, and leave us soon as the novelty has worn off. Officers of the right kind are difficult to get. They would gladly join, but the heavy and unnecessary expense they are required to go to, and the constant trouble and anxiety connected with the position, prevent all but the most enthusiastic from accepting it. It will strike every thinking person as being somewhat strange that while a general officer should be valued at \$1,000 per annum, an adjutant-general at \$3,200, a deputy-adjutant-general at \$1,700, a brigade-major at \$1,200, and an aide-de-camp at \$1,000, together with travel and hotel allowances, the colonel and officers of a regiment should be valued at \$12 apiece, and the non-commissioned officers and privates at \$8 apiece, but such is the case; and while the latter are obliged to provide themselves with gloves, winter caps, helmets, etc., the former are obliged within three months of joining, to procure

uniform, and, in case of mounted officers, proper saddlery in addition, items which vary in cost from \$100 to \$300, according to rank and corps. Then again, they have to pay regimental and band subscriptions, which in some corps are very heavy, while during the year many calls are made for various other objects.

If a certain percentage of the population strive to render themselves able to defend the balance with ability and success, the large majority who do not join the force should, at least, indemnify the smaller number for the time spent in their service. In the language of Col. Hewitt, "High excellence cannot be obtained without reasonable and adequate expenditures, and half measures and true economy are at all times incompatible."

But serious as are the difficulties in the way of obtaining a general knowledge of drill, the most serious want of all is the utter lack of knowledge of the use of the rifle. We are told in the appendix to the field exercise that "no degree of perfection a soldier may have attained in the other parts of his drill can upon service remedy any want of proficiency in this; in fact, all his other instruction in marching and manoeuvring can do no more than place him in the best possible situation for using his weapon with effect. A soldier who cannot shoot is useless and an encumbrance to his battalion." Had General Luard, at each inspection, followed out the directions laid down for the guidance of general officers in the regular army, and required "ten files taken indiscriminately from the several companies to fire ten rounds per man in individual volleys independent or skirmishing practice," he would have been somewhat startled at the result. As General Smyth reported in 1878, "Under the present system it is only waste of money in using ammunition to some of the corps, and each year many men join who have never had a rifle in their hands before. They cannot be expected to learn the use of their rifle and some knowledge of drill in thirty-six hours, the time allowed for training—three hours in each twelve days—by law established." The fact of the matter is, the men have no opportunity afforded them of learning this most essential part of their military education. A young mechanic cannot leave his work to go to the range without a pecuniary sacrifice which he does not feel called upon to make, and if any effort is made to compel him to do so, he at once sends in his uniform, and we lose him altogether. The consequence is that the men are lamentably ignorant of the use of their weapon, and if called out for actual service, would probably be as much a source of danger to each other as to the enemy. There are, of course, exceptions in every regiment, but they form but a small proportion of the whole. This knowledge of the rifle is of vast importance to the Canadian militia, for we must never lose sight of the fact that, if war should unhappily arise, we should be opposed to a nation able to put into the field ten men for our one, and in the face of these overwhelming numbers, we could only hold our own by opposing better men. The only way to cope successfully with them would be by increasing the individual excellence of our soldiers, so that if they fired fewer shots they would fire with more deadly effect.

Is it therefore wise for our Government to take steps to increase our stock of soldiers and manufacture the ammunition for the present state of affairs. Sir Selby Smyth has placed on record his opinion that "our active force ought to be compact and instructed; no stronger than we have funds to equip and maintain efficiently—corresponding with the Parliamentary appropriation—and without imposing on zealous officers the necessity which has so frequently occurred of supplementing considerable sums from private resources to maintain their corps creditably. It is surely wiser to have such a force as we can drill and discipline, to serve as a nucleus for a larger, than to attempt, year after year, with insufficient means, to keep up a nominal large one which does not altogether give satisfaction. Trained and disciplined officers and non-commissioned officers are of the first importance. Till a system is established to provide such instruction the militia will not maintain the standard which a national force should represent. Schools should be provided for elementary drill and discipline in interior economy of regiments and command of armed men. Does not the proper organization of a military force devolve on a country as much as the means of administering the laws which are carried out under its protection? It is preparation which ensures success when the unlooked-for day of trial suddenly arrives, and therefore a perfect organization, with skill and efficiency in every branch, with perfect discipline, are indispensable." Putting aside the question of a small regular army, which I believe the country is not yet prepared to take up, and which, according to General Smyth's calculation, would cost \$200,000 per regiment of 500 men, let us see if there is no other way of acquiring the necessary knowledge, drill, and discipline, and at a less cost. There is no system that I have heard of that appears so well calculated to carry out these objects as that now in operation in South Australia. There, if my memory serves me right, the rates of pay are: Lieut.-Colonel, £100, and £75 horse allowance; Majors, £75 and £75, Adjutant, £30 and £5; Captains, £50; 1st Lieutenant, £10; 2nd Lieutenant, £9; Staff-Sergeant, £20; and so on down to privates, who get £12. In return for this all the officers are required to be perfectly uniformed, the field officers to be properly mounted and to own their own horses, and the whole to spend a certain number of days in camp, a further number of evening drills at head-quarters, and go through a course of musketry instruction. A similar system could, with advantage, be introduced here, and the rates made somewhat similar, say for a six company regiment—

1 Lieut.-Colonel, \$100 and \$75 allowance	\$ 700
2 Majors, \$300 and \$300 allowance	1,200
6 Captains, \$200	1,200
6 Lieutenants, \$150	900
2 2nd do., \$100	200
1 Paymaster and Quartermaster	200
1 Adjutant, \$200 and \$300	500
1 Surgeon	200
1 Assistant-Surgeon	150
1 Sergt-Major—permanently on duty	300
1 Quartermaster and Paymaster Sergeant	300
1 Ordinary room clerk	90
6 Color-Sergeants, also to act as instructors, and to be permanently on duty, at \$300	1,800
12 Sergeants, \$70	840
18 Corporals, \$30	540
6 Buglers, \$25	150
300 Rank and File, Bandmen, &c., \$50	15,000
Band and Company allowance, &c.	2,450
	\$27,080

Under these rates of pay the country could secure the services of a well trained and disciplined body of men, and at but a fraction of the

cost of regular soldiers. Ten such regiments would provide 3,700 well drilled men ready to move at a moment's notice, at the very moderate cost of \$270,000 per annum, and would be very far ahead in point of usefulness of "the armed and undisciplined multitude of officers and men" which now represent the active militia.

The above extracts will be read with interest by all, but without much faith in the remedy proposed, i.e., to destroy a localized organization of 49,000 militia, artillery, cavalry, infantry, which if it only had a skeleton of trained officers and non-commissioned officers would be worth something, even at the beginning of war, to defend the strategic points of a frontier of 4,000 miles, and with three months training would be worth a great deal. As a substitute we are offered 3,700 highly paid citizen volunteers in 10 battalions, with about as many rank and file as a Prussian company, (when the battalion band had been deducted) what remains? a plethora of field and other officers as far as pay and uniform is concerned, for no guarantee is offered or proposed for military qualification. "What an inordinate quantity of sack to a single penny worth of bread." Certainly let militia officers who will go to a school of instruction and obtain a reliable certificate after a fixed curriculum of study be paid what would reimburse them for uniform and time expended. As for the rank and file—why should they have to pay for helmets and fur caps and necessary equipment which should be issued from store with a man's arms and uniform; they would get a better class of men by so doing than those who come for pay, and the expectation of a supplementary kit at the expense of their officers, as a fact some of the best regiments don't take their pay, but put it into the regimental funds to pay what Government should give. When we have the gold of Australia we can afford to pay an army of militia field officers. But has the writer of the letter, who censures militia musketry, and who, if we mistake not, went home to England as executive officer in command of the Dominion Rifle Association team, nothing to say about the association and its want of effect on the training of the rank and file of the Canadian militia in rifle shooting? He would wait to manufacture cartridges until he had the best rifle in the world. The cost of the best rifle would absorb the whole militia vote, and it would be surpassed by another before we got it out of the hands of the Store Department. The Prussians beat the French with a far inferior rifle than the Snider, and we hope a Canadian force if well led, would know how to fight in their well-wooded and enclosed country in such a manner that their 600 yard range rifle would be on an equality with the best long range fancy target practice armament. If we could afford a new armament by all means let us. But have we done the best with what we have? Suppose for once in a way the political gentlemen acted on the reports of the officers they pay to inspect their militia, broke up bad corps and spent more money on the efficient ones, gave extra pay to those officers as adjutants and instructors, who had qualified at one of the Royal Schools of instruction at Kingston and Quebec, or who were passed graduates of the Royal Military College. The bunkering after Halifax is scarcely comprehensible—can the officers of that garrison take more interest in the instruction of the militia than those of their own schools established for that purpose? In appraising the value of a mil-

Major-General in dollars as compared to one of our numerous militia Lieut.-Colonels (of whom it is said by the sarcastic, "it is a wise militia man who knows his own colonel,") he seems to forget that the gentleman in question is a professional soldier of some distinction, who commenced a scientific study of that profession as a cadet at 16, and has added to that education the practice of active war, and a life-time of military experience.

Now the Militia Reports show that the Royal Schools of Gunnery at Kingston and Quebec have for the past nine years given certificates of proficiency to—

"A." BATTERY.			
	Officers.	N.C.O. & Men.	Total.
Artillery.....	50	329	379
Cavalry.....			
Infantry.....			
"B." BATTERY.			
	Officers.	N.C.O. & Men.	Total.
Artillery.....	59	382	441
Cavalry.....	3	6	9
Infantry.....	19		19
	81	388	469

Therefore, irrespective of those who have failed to obtain certificates and yet gained practical military experience (767 in "B" Battery alone,) some 848 officers, non-commissioned officers and men have received a high standard of knowledge in matters that pertain to military education, as we can see by the annual militia reports, which show the curriculum in "B" Battery, R. S. G., consisting of the following subjects.—Gunnery; artillery material; shifting and working ordnance; fortification; surveying and range-finding; tactics and strategy; military law and interior economy; infantry and company drill; gun drill; mortar drill; 7 inch B.L.R. gun drill; gun drill, sling wagon; shifting ordnance, including lashing and lashing; equitation and stable duty; and regimental duty. The subjects taught in "A" Battery, R. S. G., do not appear in any of the reports and returns, but it should be the same as in the sisterschool. Now if the knowledge these men have gained has not been of marked influence throughout the country, in the various batteries and battalions composing our army, it is because the majority qualified have been from the Province of Quebec, and the whole number is so limited, compared to the mass of militia assembled only for a few days in the year. Those who have qualified at the Royal Military College and Gunnery Schools feel that their attainments are not in the slightest degree recognized, except on paper, and upon returning to their respective localities will gradually cease to take an active part in the Militia.

The applications from officers and non-commissioned officers of all arms to join the Royal School of Gunnery, Kingston, are very numerous at the present time, shewing an extreme desire among all ranks to acquire a thorough military training, but the number sanctioned is so absurdly small that many will have to be refused admittance.

We think it might greatly add to the permanent effi-

ciency of our service if the Schools of Gunnery (or at least one of them) were extended by one or two companies of infantry, so as to form an infantry as well as a gunnery school. No limit, except some proportion of officers, to non-commissioned officers and men being placed upon the numbers who desire to join for the purpose of going through a course of instruction, and that a certain number of officers as well as the cadets who have graduated from the Royal Military College and have proved themselves specially qualified to act as instructors should, upon returning to their own locality, receive an annual salary from the government (as adjutant instructors) whilst at the same time a staff course of instruction should be inaugurated at the Royal Military College affording officers an opportunity to qualify for appointment on the staff of the Militia, and that all officers, non-commissioned officers and men who have qualified on the Military College, the Royal School of Gunnery and Infantry, should as long as they remain with their regiment, receive a rate of pay greatly in excess of those who are only soldiers in name. A rate of pay that would make it worth their while to take an active interest in the profession of arms, and impart to their comrades something like the bearing, knowledge and duties of a soldier. Such men could not, in addition, be expected to pay for the partial support of the regiment. There are many of our numerous colonels wealthy and willing enough to do so; let them but insist on their adjutants being qualified men paid by the country.

National Gratitude.

Now that we have the National Policy and the National Party in power, we might work up a little national gratitude. The *Broad Arrow* points the proper direction, though perhaps shot at a venture without much aim at an individual. When it states:—"The Government of Canada has it in contemplation to appoint a military attaché to the staff of Sir A. T. Galt, the new Minister resident in London"

No fitter man could be found than Capt. Edward Palliser, brother of Lt.-Col. Sir William Palliser. The munificent generosity of these brothers to Canada is remarkable, while to a third brother Canada owes the first survey of the boundary between her territory and the United States, from the Rooky Mountains to the sea.

During the anticipation of war with Russia, the brothers—Sir William and Captain Edward—who had previously paid us a visit, presented two heavy converted guns of their own construction to the Dominion of Canada, to be mounted on the St. Lawrence front of the Citadel of Quebec. They offered another 10 in. for the armament of one of the batteries of British Columbia. The armament was graciously RECEIVED by the Canadian Government, as well as the free use of the Palliser patent for the conversion of guns which is being largely used by the Dominion Government.

The hospitality of the Irish ex-Dragoon seems never exhausted in regard to stray Canadian Militia Officers in London. No fitter man than Captain Edward Palliser could be found to assist Sir Alex. Galt on military questions connected with Canada.

Canadian Armaments.

(From the London Morning Post)

TO THE EDITOR OF THE MORNING POST.

SIR,—I have just read your able article on the manufacture of Palliser guns in Canada. It may interest your readers to know that Sir William Palliser has not stipulated for any pecuniary reward from the Canadian Government, nor for any royalty or commission from the manufacturers. They have secured his system of manufacture free, plus the advantage of his training. Canada deserves great credit for making a start in ordnance manufacture, and the money being spent in the country will probably disarm those members of Parliament who might otherwise object to send large sums out of the Dominion for such objects as cannon. Lieutenant-General Sir Edward Selby Smyth, K.C.M.G., commanding the military forces of the Dominion, has given every encouragement to Sir William Palliser, and Lieutenant-Colonel T. Bland Strange, R.A., an officer of the highest scientific attainments, and inspector of artillery to the Dominion, has frequently visited the factory and encouraged the manufacturers with his advice. Let us hope the other great colonies will follow the example of Canada; there can be no more certain way towards completing the armament of the outlying portions of the British Empire. As to the guns, there are no better. It is gradually being conceded that for competitive purposes Sir William Palliser's is the best system known. He puts barrels of coiled wrought ductile iron loose into casings, which may be of cast iron or steel. The casings not being shrunk on, the guns are therefore in the state most fitted to endure heavy firing, and the accidents attending it, such as shell bursting in the bore, chase, or muzzle, and sometimes jamming in the bore. It is to be hoped the new Heavy Gun Committee, when it does make a beginning, will order a thorough competitive trial. The Canadians have had the advantage of watching the great competition in heavy ordnance, extending over three years in the United States, which has ended in the complete victory of Sir William's guns. The United States flagship Trenton is about to visit the Thames; her armament is composed of heavy Palliser guns made by private firms in America. Should there be such a competition in England it will be interesting to note if Sir William Palliser be copied in the use of loose tubes and ductile metal, and if he will thus have to face his own guns in disguise. I do not think he has anything to fear from guns which are made on the shrinkage system with hard steel tubes, and which therefore are already undergoing a bursting strain without any charge at all.

Your obedient servant,
OBSERVER.

United States Sea Coast Fortification.

deplorable Condition of Our Defences Against Foreign Invasion.—Annual Report of General Wright.—Thousands of Millions of National Wealth at the Mercy of an Enemy.

(New York Herald, November 2.)

WASHINGTON, Nov 7, 1883.

General H. G. Wright, Chief Engineer of the Army, in his official annual report to the Secretary of War, calls attention afresh to the deplorable condition of the country in the matter of preventing the predations of a foreign power, for on our sea coast, should we suddenly get embroiled in war before our system of sea board fortification is brought to the standard required by the changed condition of modern architecture. The more important portion of his report is as follows:—
The disasters of a three month's war under the present condition of our defences might cost the nation ten-fold the expenditure that would be needed to thoroughly protect our coast against such an attack. Our great cities—New York, Philadelphia, Boston, San Francisco, New Orleans, Baltimore and Washington—should they fall into the hands of the enemy, would suffer in damages more than the efforts necessary to secure them against such disaster. But reverses would also be great calamities to our nation, crippling our war power. It was estimated that in the great fire of the city of Boston in 1872, the property destroyed within a few hours worth upward of \$30,000,000, although the fire was confined to a small part of the city, and did not touch the shipping. Is it easy to imagine the loss that would result from the fire that a

victorious enemy could kindle by his shells? Or is it easy to overrate the tribute such a city would pay for exemption from that calamity?

According to Secretary of War Polkott it has been clearly demonstrated that the exposure of employing a sufficient body of troops, either regulars or militia, for a period of even six months, for the purpose of defending the coast against attacks and fleets that might be made by an enemy's fleet, would exceed the cost of erecting all the permanent works deemed necessary for the defence of the coast. One hundred thousand men divided into four columns would not be more than sufficient to guard the vulnerable points of our maritime frontier, if not covered by fortifications. An amount of force against an expedition of 25,000 men, which is composed of regulars, would cost the nation \$30,000,000 per annum, and 11 militia, about \$10,000,000, and, supposing only one half the force to be required to defend the coast with the aid of forts properly situated and judiciously constructed, the difference of expense for six months would enable the Government to erect all the most necessary works.

THE REMEDY.

Our fortifications and torpedo boats, then, must close all of our important harbors against an enemy, and secure them to our military and commercial marine; second, must deprive an enemy of all strong positions where, protected by naval superiority, he might fix permanent quarters in our territory, maintain himself during the war, and keep the whole frontier in perpetual alarm; third, must cover the great cities from attack; fourth, must prevent, as far as practicable, the great avenues of interior navigation from being blockaded at their entrances into the ocean; fifth, must cover the coastwise and interior navigation; and sixth, must protect the great naval establishments.

Fortifications must command from the shores exterior to our harbors all the waters from which the enemy can reach our cities and navy yards with his shot and shell. The harbour mouths and all the narrow passes within them must also be occupied, and if nature has not afforded all the positions deemed requisite, others must, if practicable, be formed artificially. Fortifications should succeed each other along the channels of approach and in our harbors, so that the enemy may nowhere find shelter from our fire while lying within our harbors, should he succeed in passing the outer line of works. The harbor mouths and channels must be obstructed by lines of electric torpedoes for holding the enemy's vessels under fire of the fortifications, previously constructed and stored in the latter, and laid, in the event of war, in systems, the plans of which have been carefully elaborated in time of peace by studies of the local charts and tidal currents, each harbor having its own system recorded in this department. The wires for conducting the electric apparatus on shore must at the same time be laid securely in subterranean galleries carried out to deep water, and the electric machines themselves—the hearts of the torpedo system—must be placed in chambers within the fortifications, hidden from the enemy and secured beyond all peradventure from his direct and curved fire.

Heavy mortars must be placed in large numbers to command all those positions where an enemy is likely to anchor within their range either for the purpose of tampering with or destroying our torpedo lines or shelling our cities and public depots of military and naval supplies. The efficiency of mortar batteries against shipping is acknowledged by all military engineers; it is fully appreciated by the navies of all nations, and they are comparatively inexpensive. Our guns and mortars must be capable of piercing the sides of his ironclads and of breaking in his decks, and they must be mounted in numbers sufficient to make it impossible for any of his fast-running war steamers to get past our works. The method of defence by fortifications and torpedo boats—torpedoes for holding the enemy's vessels exposed in front of the fortifications, and fortifications for (among their other duties) protecting their torpedo lines, is the most efficient and the least expensive one that can be devised. The cost of such vessels as the British ship "Inflexible," four guns, as we learn from a recent Government publication, is not less \$300,000 per gun, while the cost of permanent fortification need not exceed one-tenth of that amount.

[The above report is instructive to us Canadians, if we cared to profit by it. Our coasts are in a worse condition as regards artillery armament than those of the United States. Fortunately for us, our inland waters do not require monster guns for their defence, our lake harbours could easily be secured by torpedoes protected by comparatively light guns such as are now being converted at Montreal on the Palliser principle. Torpedoes can only be searched for by light craft working in shore to dredge up the communicating wires, or counter exploded by torpedo boats. Such craft could not work under the fire of our 61 pr. converted guns, if the latter were protected by simple earthworks revetted with iron band gabions. Such guns would cost \$30 each, and such earthwork, as have persistently been recommended in the annual reports of the senior Inspector of Artillery, would cost but a comparatively trifling sum. They could be thrown up by the militia themselves, and would last half a century. They would, moreover, be capable of coping with such improvised war vessels as could appear on our inland waters—the trentles between Great Britain and the United States for bidding the construction of war vessels on the Lakes before the declaration of war. British gun boats up the St. Lawrence should be the first to appear on Lake Ontario. These conditions are fortunate for us, as a few such guns as are in vogue in Europe would absorb the whole militia vote.—Ed. C.M.R.]

Kinglake on the Crimean War.*

Mr. Kinglake's sixth volume has just been placed in the hands of the public,—containing the historians elaborate commentary relating to all the circumstances of the winter troubles, of his terse comparison between the French and English systems of war administration; of his reasons for assuming certain causes which prevented England from having any real war department at all; of his retrospective inquiry into our military regime at the time of the great conflict with France; of his exposition of the way in which France and England ministered to their armies in the East; of the state of the allied armies before the hurricane of the winter of the winter throughout the winter; of the reasons for the

people of England during these trials; and of the care of sick and wounded, with the undesigned trial of brainpower and speed between man and woman. The changes of position that took place after the beginning of winter, as Mr. Kinglake explains before recurring to his protracted chronicle, were several. The Russians withdrew from Tchorgoum, and generally from the plain of Balacava; but into the winter they so far became aggressive as to encroach upon ground previously held by the Allies and to strengthen their acquisition by earthworks. They seized and for weeks held the Mamelon, a mound in advance of their Malakoff Bastion, and they threw up redoubts—far in advance of their Karabel defences—on the north-west angle of Mount Inkermann. As regards the French and English, the important change in their position is thus stated: At the time indicated in the text, General Canrobert relieved the overtaken troops from a material part of their duties, by taking up the ground they had occupied both on Mount Inkermann and on the Victoria Bridge.

The winter troubles and the winter sickness and suffering began to lessen with the gradual return of spring. After a while, in gentle—almost humble—guise, which, as Mr. Kinglake gracefully says "put the foes of change off their guard," there acceded to the State a new power—the power of womanhood.

Almost at one time—it was when they learnt how our soldiers had fought on the banks of the Alma—the hearts of many women in England, in Scotland, in Ireland, were stirred with a heavenly thought impelling them to offer and say that, if only the State were consenting, they would go out to tend our poor soldiers laid low on their hospital pallets by sickness or wounds; and the honour of welcoming into our public service this new and gracious aid belonged to Mr. Sidney Herbert.

Most happily this gifted minister had formed an ardent belief in the advantages our military hospitals would gain by accepting womanly aid; and proceeding to act on this faith, he not only despatched to the east some chosen bands of ladies, and of salaried female attendants accustomed to hospital duties, but also requested that they might have quarters and relations assigned to them; and, moreover, whilst responsible for the principal medical officers at Scutari to point out to those new auxiliaries how best they could make themselves useful, Mr. Sidney Herbert enjoined him to freely visit the patients and determine the councils of the lady-in-chief. That direction was one of great moment, and well calculated to govern the fate of a nearly ventured experiment. Thus it was that under the sanction of a Government according to the counsels of one of its most alert and sagacious members, there went out angel women from England, resolved to confront that whole world of horror and misery that can be gathered into a military hospital from camp or battlefield; and their plea, when they asked to be trusted with this painful, this heart-rending mission, was simply the natural sympathy of their sex for ministering to those who lie prostrate from sickness or wounds. Using that tender word which likened the helplessness of the down-stricken soldier to the helplessness of infancy, they only said they would "nurse" him; and accordingly, it regarded with literal strictness, their duty would simply be that of attendants in hospital wards—attendants obeying with strictness the orders of medical officers. It was seen that the humble soldiers were likely to be the men most in want of care, and the ladies were instructed to abstain from attending upon any of the officers.

A wholesome revolution was speedily effected by the brain of woman in our vast barrack hospital at Scutari. Miss Stanley, with the ladies who followed her, became a gracious example of the ministering power that feminine gentleness can wield. "Mary Stanley, now no more," says Mr. Kinglake in a foot note, "was a daughter of the late Edward, Bishop of Norwich, and a sister of the Dean of Westminster. Her life has been sketched very briefly and simply—the brevity and simplicity of a powerful writer—by her brother Arthur Stanley, the Dean." Half in precept and half in prophecy, her mother used to say to her, "Remember Mary, your lot in life is to sow for others to reap." The injunction was not forgotten. "I am contented," said the noble-hearted lady, in her life, "that it should be so."

When the number of lives were saved—saved even in that pest-stricken hospital at Kullali—by a long, gentle watchfulness, when science almost despaired, no statistics of course can show; and still less can they gauge or record the alleviation of misery effected by her care as this; but apparent to all was the softened demeanour of a soldier when he saw approaching his pallet some tender, gracious lady, intent to assuage his suffering, to give him the blessing of hope, to bring him the food he liked, and withal—when she came with the medicine—to rub him like a sick child. Coarse expressions and oaths derived from barracks and camps died out of the wards as though exorcised by the sacred spell of her presence, and gave way to murmurs of gratitude. When conversing in the softened mood with the lady appointed to nurse him, the soldier used often to speak as though the worship he owed her and the worship he owed to heaven were blending into one sentiment; and sometimes indeed he disclosed a wild faith in the ministering angel that strained beyond the grave. "Oh!" said one to the lady he saw bending over his pallet "you are taking me on the way to heaven; don't forsake me now!" When a man was under delirium, his magic force always transported him to the home of his childhood, and make him indeed a child—crying "Mother! mother!" Amongst the men generally, notwithstanding their moments of blind piety, there still glowed a savage desire for the fall of Sebastopol. More than once—waited up from Constantinople—the sound of great guns was believed to announce a victory, and sometimes there came into the wards fresh tidings of combat brought down from our army in front of the long-besieged stronghold. When this happened, almost all of the sufferers who had not yet lost their consciousness, used to show that, however disabled, they were still soldiers, true soldiers. At such times, on many a pallet the dying man used to raise himself by unwonted effort, and seem to yearn after the strife, as though he would answer the appeal of the bugles and drums.

A name that followed quickly in this bright and tender page in the chronicles of pain and death was that of Florence Nightingale. This gracious lady had become well-versed in the business of hospital management; and she knew well that for the careful nursing of a prostrate soldiery, laid out before her in ranks so appalling, it was as to bear being reckoned in miles, an administrative mechanism, both impelled and controlled by authority, was a condition of absolute need. Her dominion over the minds of men was such that while she governed those in authority she likewise commanded the willing obedience of soldiers and orderlies who, during the winter months, never failed in her ready attention.

In thoughtful considerate delicacy. These are her words, quoted by Mr. Kinglake, in one of the most absorbing chapters of his present volume.

"Never came from any of them one word nor one look which a gentleman would not have used; and while paying this humble tribute to humble courtesy, the tears come into my eyes as I think now, amidst scenes of loathsome disease and death, there rose above it all the innate dignity, gentleness, and chivalry of the men—for never, surely, was chivalry so strikingly exemplified—shining in the midst of what must be considered the lowest sinks of human misery, and preventing instinctively the use of one expression which could distress a gentlewoman."

"The Invasion of the Crimea: Its Origin, and an Account of its Progress down to the Death of Lord Raglan." By A. W. Kinglake. Vol. VI. William Blackwood & Sons.

LECTURE ON THE PRINCIPLES WHICH SHOULD GUIDE THE CONSTRUCTION OF HEAVY ORDNANCE, AND ON THE MATERIALS FOR THE SAME.

I now come to Sir William Palliser's system of construction, which, without a doubt, has been of much advantage to the country in affording the means of utilizing a great number of old cast-iron guns and converting them into very efficient rifled weapons. It is stated by Captain E. Palliser that not a single burst has taken place either in England or in the United States, out of nearly two thousand service guns, from the 61-pounders to the 40-ton gun.

I am indebted to Captain E. Palliser for a copy of his report on Sir William Palliser's system as applied in the United States.

In this report it is said that "the law laid down by Sir W. Palliser is this: 'Every gun should have a casing, and this should never be in a state of tension, but of a repose, in fact of perfect rest, till called on to do its work each time it is fired.'"

He goes on to describe the construction as an inner tube of cold wrought iron pushed into an outer casing by hand and secured by a ring screwed in at the muzzle; he says, "when the gun is fired the tubes expand till they rest against the interior surface of the casing, and then a sort of give-and-take work is set up between the barrels and the great mass of the casing," and he adds, "this construction gives enormous strength, a strength which has never yet been carefully considered and estimated."

The explosion must throw a strain upon the wrought-iron tube far beyond its elastic limit, but the tube being a soft and yielding nature stretches and takes a permanent set. At the same time the strain passes in part to the cast iron, and if it brings on a strain beyond its elastic limit, this also requires a permanent set, and the condition described by Captain Palliser is only possible in case the two permanent sets should be exactly balanced. But even in this case this permanent set would go on increasing each time the gun was fired, and the gradual result would be to increase the strain upon the cast iron and decrease that on the wrought iron until at length the normal condition of the gun would be that of a soft iron tube compressed by a cast iron jacket.

If, now, this can be so arranged that the strain upon the cast iron never exceeds its elastic limit, the gun will have arrived at a permanent condition, and no amount of firing will alter it; but I do not believe this can be attained with cast iron in large guns and with heavy pressures.

The process of alteration of condition in these guns up to the sizes of which proof has been made, as recorded in Captain E. Palliser's report, and under the moderate powder pressure therein mentioned, viz., 4 to 13½ tons per square inch, will no doubt be very slow, but in large guns and with heavier pressure powder it would undoubtedly be more rapid.

That Sir William Palliser's system is one of very great value cannot be denied, and probably for guns of moderate size it would beat all others in cheapness, and equal them in durability, and to those to whom actual experience outweighs a priori reasoning, the fact that an old 32-pr cast iron gun converted into a 61-pr by Sir William Palliser, fired 2,150 rounds with heavy charges, and is still a good serviceable gun, must be a convincing proof of the eminent services which Sir William Palliser has rendered to his country by his untiring perseverance in the face of many and great difficulties.

But when I come to consider the question of heavy guns, such as 9-inch and upwards, I must be guided by a careful study of the induced strains.

I will direct your attention to the 9-inch gun No. 3 mentioned in the American Ordnance Report for 1876, converted from a Rodman according to Sir William Palliser's system.

I find that with a charge of 20 lbs. of powder and 100 lbs. shot, the powder pressure was 5.3 per square inch.

The shrinkage between the inner tube and wrought iron jacket was .006 inches in the diameter, equal to about 1 in 100.

The slack between the wrought iron jacket and the cast iron was 0.055 inch or about 1 in 122 parts.

Under these circumstances the resulting strains would be as follows:—

			Tons per square inch
Iron tube..	Inner surface	19.67	" "
	Outer surface	14.45	" "
Iron jacket..	Inner surface	18.17	" "
	Outer surface	14.73	" "
Cast iron....	Inner surface	0.1823	" "
	Outer surface	0.2353	" "

Now the elastic limit of this iron is given at 11-15 tons. Consequently the inner tube and jacket are strained from 3½ to 8½ tons above the limit, and a permanent set would result.

The permanent set of the same iron under a strain of 14½ tons is also given as .01 per inch of its length.

If then there were no outer shell of cast iron, the external radius of the iron jacket would become 6.7425 x (1 + .01) = 6.810175, but the inner radius of the cast iron was only 6.748250, therefore the new condition of the cast iron in permanent set would be equivalent to a shrinkage of .061925 between the wrought iron and the cast iron, or about 1 in 16 parts.

From this it is evident that the wrought iron must be greatly compressed by the cast iron after the first round, and that the statement in the foot-note at page 3 of Captain E. Palliser's Report cannot be accepted as representing a general fact, although it might be true under particular circumstances.

The result of long-continued firing would thus be to throw a gradually increasing strain on the cast iron, and when that reached its tenible strength the gun would begin to crack from the inside; but inasmuch as the soft lining would prevent the penetration of the powder pressure into the crack, the crack would go on very gradually increasing, and would not reach the outside and the gun would burst, but not with that explosive violence which it would have done but for the operation of the soft internal lining of wrought iron.

The gun would be a cheap gun, a safe gun, and a long-enduring gun, but there I must stop. It would in time fail, but probably the time would be long, and the failure not attended with much danger.

But when we come to large guns and heavy powder pressures, I do not think we could trust to this system. We want a gun which will not burst at all, and which will last practically for ever, and for that I am convinced the future lies with the gun either made of Sir Joseph Whitworth's material in five or six concentric rings properly proportioned, or better still in my opinion, in the wire-coiled gun which I have so long advocated, and which, as far as it has been tried, has given the most satisfactory results.

Obituary.

The death of Major G. F. Blackwood, commanding E Battery, B Brigade, Royal Horse Artillery, adds another name to the roll of gallant Scotch officers who have fallen in the Afghan campaign. George Frederick Blackwood was born in 1835, the second son of the late Major William Blackwood, of the Bengal Army, and a grandson of the founder of the well-known publishing house of that name. His maternal grandfather was Brigadier G. F. Moore, for many years colonel of the 5th Bengal Native Infantry, which in his days was a nursery of many officers who afterwards rose to high distinction in the service. George Blackwood was educated at the Edinburgh Academy, and afterwards passed at Addiscombe, where he made a choice of the Artillery branch of the Bengal service. He was gazetted as Lieutenant on the 11th of December, 1857, and was soon hurried out to India, where he served in the suppression of the Mutiny with the Rohilund Movable Column, under the command of Lieutenant-Colonel Wilkinson, 42nd Royal Highlanders. In this force Blackwood was entrusted with the command of two guns. His services here led to a divisional adjutancy of artillery, the duties of which he discharged from 1859 to 1862 at Bareilly and Gwalior. From November, 1862, to December, 1863, he acted as adjutant of the 2nd Brigade of Royal Artillery, and afterwards as adjutant of the 10th Brigade until September, 1864. He received his captaincy in February, 1867, and was selected for the command of the artillery in the Looshal expedition, under Brigadier-General Bouchier, C.B. Captain Blackwood was present at the attacks on Tipal Mukh, Kungnung, and Talkoont, and earned the praise of General Bouchier, who, in his dispatch dated March 19, 1872, wrote as follows:—"Captain Blackwood and officers R. A. nobly sustained the reputation of the corps. The word 'difficulty' was unknown to them." Captain Blackwood's report upon the artillery in the Looshal campaign contained many valuable suggestions as to the nature of the gun most suitable for such service, and on the management of artillery and the equipment of elephants in mountain, jungle, and morass campaigning; and was printed and published by the Government of India. His services in this expedition were rewarded by a brevet majority in September, 1872. He afterwards commanded a battery in the Royal Horse Artillery during the absence in England of Major and Lieutenant-Colonel Hills, C.B. Obligated to take sick leave in England, he was prevented from sharing in the first part of the Afghan war, but after the massacre at Cabul he was moved up to Candahar, in command of E Battery, B Brigade. On the advance of Ayoub Khan, he was ordered out in command of the Artillery under General Burrows, and correspondence from Candahar speaks of the high state of efficiency in which his gunners took the field. In the action with the mutinous troops of the Wali the artillery distinguished themselves in the punishment of the rebels, and General Primrose reports that "the determined energy with which the artillery was brought up to the front reflects the highest credit on Major G. F. Blackwood." Of the battle of Kushki-Nakrud the details are as yet so fragmentary that we cannot profess to speak with accuracy; but the aspects of the field, when visited by the burial parties, showed that the artillery had made a desperate struggle, had fought like heroes, and had inflicted a terrible punishment upon Ayoub Khan's forces. Our Candahar correspondent says: "The first thing that met the eye was the long line of dead horses which marked the position of Blackwood's Battery. Opposite was another long line of dead horses, showing the execution done by Blackwood upon Ayoub's guns." Another correspondent speaks of the desperate struggle made by Major Blackwood and his officers during the final charge of the Ghazis. The position in which Major Blackwood's body was found indicated that he had fallen during the last gallant stand made by our troops against the enemy. He was wounded in the early part of the action, but had his wounds dressed on the field, and returned to die at his post. The following passage in a private letter from a distinguished officer lately holding high command in Afghanistan may be taken to represent the estimation in which Major Blackwood was held throughout the service: "Blackwood's death weighs also most heavily on all his brother officers and friends—not one of whom but deeply regrets his loss, not only as a personal one, but also as a public one to the regiment and army, for no better officer ever entered the service."

COMPARATIVE COST.

The sum expended by Vanderbilt on his new house in Fifth Avenue, New York, is \$1,500,000—three times the amount voted annually by the Dominion Parliament to maintain their whole militia force of 40,000 men!

Relics of the Past.

A FIND OF OLD-TIME ARCHIVES AT THE KINGSTON BARRACKS.

Kingston, Nov. 19.—Mr. Geo. W. Newlands, while reconstructing the storehouse in the Tete-du-Pont barracks, came across some very ancient archives, some of which date back as far as 1818. One of them, dated 12th September, 1818, is a shipping bill of commissariat goods to Fort George, signed by E. Urquhart. The name of the boat upon which the goods were shipped was the Frontenac, and was sailed by James Mackenzie. Another is an order to E. P. Coffin, deputy commissary-general, for the removal of the 79th regiment from Kingston to Montreal. There were only one woman and three children in the regiment. This document is dated 1820. Another document is as follows:—

" COMMISSARIAT OFFICE,

" Lachine, 14th July, 1821.

" One small batteau, manned by four Canadians, Antoine, Loisselle, guide, proceeded from this port to convey to Fort Wellington such of the settlers, with their families and baggage, as have been obliged from sickness on their way up to remain at Cascades or Cedars or Coteau du Lac, as well as pensioner Lane, with his wife and baggage, who were left by the party of the 76th Regiment. Upon their performing this service, and receiving such loading as will be appointed for them, they are to return to this port. Wages, thirty shillings per man for the trip.

(Signed,) " JOHN FINLAY, D.C.G."

" The following persons are put on the batteau in charge of Antoine Loisselle:—Pensioner Lane, wife and child and baggage, on their way to Fort George per March route. Settler Andrew Climie, wife and eight children, on their way to Lanark settlement.

(Signed,) " J. THOMPSON,
" D. A. Commissary-General.

" Coteau du Lac, 17th July."

Imperial Military News.

—The Moncrieff principle of mounting guns on disappearing carriages, which allows the weapon to sink under cover of the parapet with the recoil, and rise to the firing position when loaded by the action of a counterpoise, is being extended to such of the British stations abroad as present defensive features suitable to the employment of the system, which is much more useful in some situations than in others. A number of these carriages have just been prepared at the Royal Arsenal, Woolwich, for conveyance to Bermuda, and embarked on the steamship *Solway*, one of a new line of packets established for trading with Bermuda and Nassau.

—Yesterday the twenty-first official year of the Volunteer organisation was brought to a close, and, in accordance with the regulations, returns must be forwarded at once to the War Office by every regiment, setting forth the enrolled strength, number of officers, &c. At the date of the last returns there were out of 206,250 enrolled Volunteers, no less than 197,585 officers.

—Portsmouth.—The trials which have been made on board the Excellent (gunnery ship) at this port of directing guns by electricity have been deemed sufficiently satisfactory to warrant the introduction of the system in all broadside ships, in addition to the fittings at present in use for firing broadsides by electricity.

Scores Made during 1880.

FIELD BATTERIES.

Royal Military College (9 Por. R. M. L.).....	571
"A" R.S.G.....	414
"B" R.S.G.....	547
Welland Canal.....	473
Toronto.....	489
Wollington.....	432
Durham.....	416
Kingston.....	500
Ganonoque.....	478
Montreal.....	558
Quebec.....	471
Woodstock, (9 Por. S. B.).....	419

9 Pr., R.M.L.

GARRISON BATTERIES

Digby.....	259
Gaspé.....	251
No. 1 Quebec.....	208
No. 2 ".....	220
No. 1 1st Halifax.....	191
No. 2 ".....	221
No. 3 ".....	252
No. 4 ".....	179
No. 5 ".....	205
No. 6 ".....	181
No. 2, 2nd Halifax.....	218
No. 3, ".....	199
No. 4, ".....	266
No. 5, ".....	305
No. 1 Battery, Lewis.....	155
Toronto.....	154
Cobourg.....	153
Port Hope.....	150
Collingwood.....	144

Kind and Wise Words

FROM THE REV. DR. GRANT, PRINCIPAL OF QUEEN'S COLLEGE TO THE TOTAL ABSTINENCE SOCIETY OF "B" BATTERY, R. S. G.

At one of the usual weekly meetings of the above Society held in the Tete-du-Pont Barracks, on Friday evening at eight o'clock, the President (Lt.-Col. Strange) in the chair, Vice-President Lieut. Donaldson. The meeting was duly opened, the usual routine business transacted, and the Battery band played an introductory overture. The President then with a few appropriate remarks introduced the Rev. Dr. Grant, Principal of Queen's College, who made the following address:—

I came to-night to hear and see, rather than to speak. My old friend Mr. Donaldson invited me, and I came, knowing well that any society that he was connected with was sure to be of the right sort. And I am right glad that I have come, and for many reasons. It does one good to see any kind or class of men banded together, not by what is selfish but by what is self-sacrificing, seeking to improve themselves and to help one another. We are made in God's image, and therefore there is no limit to the height we may reach. When I read a book that tells the story of a true man's life, I say to myself, "you can be like that man, if you will. Be like him, then." And what I have often said to myself, I say to you, to each one of you. But yours is not an ordinary society. Your place and work in the Dominion gives to anything you do a far-reaching influence. You are like a

seed-field, to borrow a figure used by your Chairman in a side-talk with me a minute ago. Men come here from various quarters to study, and they will go away bearing your stamp, to a greater or less extent. The Batteries at Quebec and Kingston are thus educators of the militia generally, and therefore of the country for good or evil. I left my old work in Halifax to take my present position because of the influences that flow out to the whole country from a University. Men come to us as students from every Province, and they go away as doctors, clergymen, lawyers, teachers, engineers, educated business men, to mould society over the length and breadth of the land. That is the kind of work you too are doing, and so I feel that we are relations, and that I ought to be with you to-night. Every man who is not a mental or moral cripple loves his country and hopes that it may become great. Our country is indeed big enough, as Colonel Strange remarked, but the greatness of a country does not depend on its size or on the number of its people. It depends altogether on the stuff that the people are made of. Greece was small compared with old Persia, but while all of us are indebted to Greece, what did the vast Persian Empire do for the world? India is nearly ten times as populous as Britain, but it is not India that governs Britain. We can make our country great. Each man can do so by being great. All that is needed is that we be true to ourselves, and have faith in our country's future. That is patriotism and a man that is not a patriot is but a poor cripple, to be pitied as you pity one who is lame, to be scorned if he brags about his deformity. The influence that you as a Battery and Gunnery School must have on the whole country puts you under a responsibility then. There is another responsibility on you, one that men who wear any kind of uniform share with you. When I was a minister I felt that my black coat imposed an honourable obligation on me. If I did anything false or mean I would disgrace not myself only but all who wore the same uniform. I had to walk worthy of my cloth. So must you. Is there any uniform in the world like yours? Would you exchange it for the uniform of any other country under the sun? What a glorious past and present it speaks of! Wherever you go, let your uniform be a true sign to all, that a man is passing who can be depended upon to be true, faithful, sober, helpful to the weak, a strength to the country. He has taken the oath to the Queen, and he must represent the Queen, who represents the nation's life. There is another obligation on us, which I see you are aware of. You admit ladies, and the boys and girls to your meetings. That is right. God puts men, women, and children into families, and it is a poor society that dare not imitate Him. The boys will be sure to imitate you. They want to be thought manly. If they see you drunk, if they hear you swear, they will think it manly to drink and swear. We sometimes think that boys do not notice. Do they not? They are to the full as quick to see, and as ready to feel as we are. As a boy I have felt pleasure and pain so acutely that any addition to either would have killed me. And when people remarking the joy or sorrow said that I was only a boy, I wondered if ever they had been boys themselves. So, reverence the boys. Bless, and do not curse them by your example. This is one of the most wonderful things about the good and bad we do, that the influence is not confined to ourselves, but goes down to our children and children's children to the latest generations. Surely it is enough to keep a man from sin, when he thinks that he is not only poisoning his own blood, but cursing poor little ones—yet unborn. A man may not care about himself, but unless he is a brute he loves his children.

But I must not forget that this is a society of abstainers, and that I ought to speak a word about the special obligation you freely take on yourselves. I can speak

Sir William Palliser's Experiments.

On Monday last a few officers including Captain Cyprian Bridge, R.N., on the part of the Admiralty, and Major C. H. F. Ellis, R.A., on the part of the War Office, assembled at Erith to witness some novel and useful experiments in gunnery conducted by Sir William Palliser at the proof-grounds of Messrs. Easton and Anderson, adjoining their extensive engineering works at Erith. The gun, which was a 64-pr. naval 71-cwt. gun of the Palliser type, had, we were informed, been previously fired nine times doubly loaded in the presence of a number of officers and engineers interested in the testing of guns to destruction. On the completion of this programme without injury, the gun was sent into the works and converted into a breech-loader on the plan presented to the Ordnance Select Committee by Sir William Palliser in 1863, and recorded with two drawings and model on September 18, minute 9908-9959. The principle will be best understood by our readers if we say that the gun is closed with a screw plug at the breech, almost exactly the same as the plug in the large Service wrought-iron guns, with this exception that the plug is movable. It has a gas check on its inner face, and is fitted in a screw collar, which again is attached to a hinge on the right side of the breech of the gun; on unscrewing the breech plug the gas check retreats into a hood in the collar, and is thus protected from blows in action. It is stated that a 9-inch 250 lb. shot, if struck against a gas check in loading a gun would probably render it unserviceable, and that therefore all gas checks should be protected on being withdrawn from the gun. When screwed home the breech closure does not appear to require any locking, as four rounds were fired from the gun loaded as a muzzle loader and without opening the breech. We were informed that this is due to the desire of the Canadian authorities that their breech-loaders should be made so as to act as muzzle-loaders, as it was found that in winter the breech-action sometimes freezes. On one occasion, during a night alarm, a Service 110-pr. B.L. rifled gun was found to be useless, as the breech action was frozen hard, and the lead-coated shot of course could not be put down the muzzle.

The gun inspected on Monday was in the open facing a mound of earth, and mounted on a wooden carriage and slide, the latter at a sharp incline. The design of this gun is to guide Canadian manufacture, as that country has adopted the Palliser system as cheap and of easy construction, within the means of their engineers; and as also possessing a remarkable capacity for being fired doubly loaded without bursting, which was quite unprecedented. The Canadians have just completed a number of converted guns, and are at work on two formidable 7-inch B.L. Palliser guns of 27 calibres. We subjoin a drawing of one of these guns with the 7-inch doubly loaded gun as fired a few months since, in order that our readers may compare the two. The obvious inference from an inspection of these drawings is that, if the light gun can stand such double charges, the heavier gun of the same calibre will be strong and serviceable, and do credit to Canadian enterprise.

On inspecting the gun, Sir William drew attention to his central fire apparatus. It consists of a rod of steel, about one inch in diameter; it is as long as the breech-plug, and is fitted with a capsule, containing powder at one end and two handles at the other; it is readily thrust into its place in the breech-plug, and half a turn of the wrist fixes it. Then can be seen the brass ring between the handles; on pulling this a pin comes out, to which the ring is attached, and a sharp click announces that the gun is on full cock, and then the pin, fitted with a spiral spring, is ready to descend on to the cap and little magazine (which is now close up to the powder charge in the gun) on the word of command to "fire."

The violence of the discharge suggested that, although the powder charges were 10 lbs. each, the whole detonated from the action of the small magazine and large copper cap. This cannot be positively ascertained until a few pressure gauges can be obtained. These have been applied for to the War Office, and will be employed without loss of time when received. After each discharge the central fire apparatus was seized by Mr. List, the manager of Messrs. Easton and Anderson's works, and it was seen that he gave a half turn to the two handles, withdrew the steel rod containing the central fire pin, and at once inserted the nozzle of a steam hose attached to a neighboring portable engine: the steam being turned on the smoke was blown out of the muzzle with a puff, and the gun perfectly cleaned inside in about eight seconds. *No spm'ing was therefore required.*

In turret ships and casemates the smoke issuing from large guns on opening the breech is a very serious nuisance to the gunners, and this simple invention of Sir William Palliser's is designed to do away with the inconvenience.

It would be interesting to see if sponging could not be avoided with our large muzzle-loaders by the use of the Palliser steam jet; like all good inventions it is simple and cheap.

The breech action acted very well; the thread on the screw plug differs from the French system in being complete instead of interrupted, and is therefore manifestly so much the stronger. Their system was proposed after Sir William had laid his plans before our Ordnance Select Committee, and had deposited his model at Woolwich, and Sir William was heard to declare on Monday that the French have to employ a key or lock to keep their plug in before each round; without this precaution their plugs are wont to shoot out to the rear at every round fired. And this reminds us that two 12-inch French guns have lately blown out their breeches. It seems a pity to run after the French for a system when an admittedly better one is to be found at home. The Canadians have avoided this blunder it would appear, so that their patriotic exertions to arm themselves become doubly interesting.

Before leaving the ground the officers inspected a small steel-faced plate which had been fired at by Sir William with small new pattern Palliser shot in comparison with the old pattern; the results were very remarkable, but we shall reserve our remarks on these for the forthcoming trial, the War Office having ordered twenty trial projectiles to be made at once.—*United Service Gazette, Nov. 13.*

The *Engineer* also has an interesting article, and sums up thus:—

"In conclusion, the following points may be noticed with regard to Palliser's breech-loading gun: It combines the tappet-rod system of closing the breech joint with the principal features of the breech-closing arrangement, subsequently designated the French system—that is to say, the screw-carrier pivoting on a vertical hinge fixed on one side of the breech. This, besides being a convenient arrangement, has the merit of being singularly well adapted to purposes of conversion, as exemplified in the very gun under trial. A very short length at the breech end is required for the screw, while the carrier hinge plate is readily attached to the breech of any gun. A general designation, such as 'Woolwich' or 'French,' is very convenient, because it gives no encouragement to any inventor's claims. Officers would doubtless be held responsible for connecting the names of individuals with designs adopted in the service, unless fully authorised to do so. Nevertheless, it is much to be regretted if on this account injustice is done, and an English idea becomes labelled with a designation calculated to disconnect it with its real origin."